

Flatfish fishery: impact & challenges

Soetaert Maarten^{1,2}, Hans Polet², Annemie Decostere³, Marieke Desender^{2,3} and Koen Chiers¹

¹ Bacteriology & Poultry Diseases, Department of Pathology, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, B-9820 Merelbeke, Belgium
E-mail: maarten.soetaert@ugent.be

² Institute for Agricultural and Fisheries Research (ILVO), Animal Sciences - Fisheries, Ankerstraat 1, B-8400 Oostende, Belgium

³ Department of Morphology, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, B-9820 Merelbeke, Belgium

Flatfish are by far the most targeted marine organisms by the Belgian fishermen. Sole (*Solea solea*) and plaice (*Pleuronectes platessa*) indeed take first place with regard to landings value and landings weight, respectively. Both demersal fish species are mainly caught using beam trawls with tickler chains. However, this fishing technique has several well known disadvantages including seabed disturbance (caused by the deep penetration of the chains in the bottom), excessive discards (due to lack of species and size selectivity) and high fuel consumption. Improvements have been made to the fishing gear in order to reduce water resistance and to increase selectivity for species and size resulting in less fuel consumption and by-catch reduction, respectively. However, these adjustments were not assigned as sufficient. Alternative passive techniques such as fly shooting, gill nets or long lines are available which are more selective, result in almost no seabed contact and markedly less fuel consumption. However, these latter techniques currently are hardly economically feasible (gill nets and long lines) or too dependent on the weather conditions to be fully effective (fly shooting). Adequate long-term solutions hence are indispensable to ensure a sustainable and profitable future for the flatfish fishery. The most promising alternative meeting both the fisherman's aspirations and the need for ecological progress is pulse fishing. In this fishing technique, the tickler chains are replaced by electrodes towing over the sea floor and inducing electrical pulses, which elicit an upward movement of the fish enabling its catch without spading the bottom. Pulse fishing, using high frequency and voltage pulses, is currently evaluated for catching sole. Hitherto, several plus points are discernible in comparison to the classical trawl fishery: marked decrease in seabed disturbance, reduction of bycatch of undersized sole and plaice and invertebrate benthos and halved fuel consumption (van Stralen, 2005). Unfortunately, also negative effects such as dislocated spinal cords, hemorrhages and mortality were observed in certain exposed fish species, especially cod (van Marlen *et al.*, 2007; de Haan *et al.*, 2008;). These adverse effects need to be tackled in order to be able to define pulse fishing as an environmental friendly fishing technique. Further studies hence are needed to define and optimize pulse characteristics for stimulating flatfish that are not harmful for (other) exposed marine organisms.

References

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